

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_ PAGES

2. AMENDMENT/MODIFICATION NO. \_\_\_\_\_ 3. EFFECTIVE DATE \_\_\_\_\_ 4. REQUISITION/PURCHASE REQ. NO. \_\_\_\_\_ 5. PROJECT NO. *(If applicable)* \_\_\_\_\_

6. ISSUED BY \_\_\_\_\_ CODE \_\_\_\_\_ 7. ADMINISTERED BY *(If other than Item 6)* \_\_\_\_\_ CODE \_\_\_\_\_

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)* \_\_\_\_\_ (X) 9A. AMENDMENT OF SOLICIATION NO. \_\_\_\_\_  
 9B. DATED *(SEE ITEM 11)* \_\_\_\_\_  
 10A. MODIFICATION OF CONTRACT/ORDER NO. \_\_\_\_\_  
 10B. DATED *(SEE ITEM 11)* \_\_\_\_\_  
 CODE \_\_\_\_\_ FACILITY CODE \_\_\_\_\_

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended,  is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:  
 (a) By completing items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)* \_\_\_\_\_

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES <i>(such as changes in paying office, appropriation date, etc.)</i> SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER <i>(Specify type of modification and authority)</i>

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER <i>(Type or print)</i>	16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>
15B. CONTRACTOR/OFFEROR	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>	<i>(Signature of Contracting Officer)</i>

Item 14. Continued.

**CHANGES TO THE SPECIFICATIONS**

Replacement Sections - Replace the following section with the accompanying new section of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0002 TO SOLICITATION NO. DACA63-03-B-0011:"

13120A STANDARD METAL BUILDING SYSTEMS

END OF AMENDMENT

SECTION 13120A

STANDARD METAL BUILDING SYSTEMS

01/02

AMENDMENT NO. 0002

PART 1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Division 1 Section requirements:

SD-02 Shop Drawings

Drawings; G

Detail drawings consisting of catalog cuts, design and erection drawings, and an isometric view of the roof showing the design wind uplift pressure and dimensions of edge and corner zones. Shop painting and finishing specifications. Anchor bolt placement plan and column reactions.

SD-03 Product Data

Design Analysis; G

Design analysis (building and foundations including anchor bolt plans) as one package with the drawings.

Instruction Manuals; G

Manufacturer's literature for individual building component systems.

Erection; G

Manufacturer's erection instruction and erection drawings describing the preparation requirements, assembly sequence, temporary bracing, shoring, and related information necessary for erection of the metal building including its structural framework and components.

Qualifications; G

Qualifications of the manufacturer, the manufacturer's Representative when one is used, and qualifications and experience of the building erector. A brief list of locations where buildings of similar design have been used shall be included with the detail drawings and shall also include information regarding date of completion, name and address of owner, and how the structure is used.

SD-04 Samples

Accessories; G

One sample of each type of flashing, trim, closure, cap and similar items. Size shall be sufficient to show construction and configuration.

Roofing and Siding; G

One piece of each type and finish (exterior and interior) to be used, 9 inches long, full width. The sample for factory color finished covering shall be accompanied by certified laboratory test reports showing that the sheets to be furnished are produced under a continuing quality control program and that a representative sample consisting of not less than 5 pieces has been tested and has met the quality standards specified for factory color finish.

Fasteners; G

Two samples of each type to be used, with statement regarding intended use. If so requested, random samples of bolts, nuts, and washers as delivered to the job site shall be taken in the presence of the Contracting Officer and provided to the Contracting Officer for testing to establish compliance with specified requirements.

Insulation; G

One piece of each type to be used, and descriptive data covering installation.

Gaskets and Insulating Compounds; G

Two samples of each type to be used and descriptive data.

Sealant; G

One sample, approximately 1 pound, and descriptive data.

One piece, 9 inches long, full width.

One piece, 9 inches long, full width.

SD-07 Certificates

Metal Building Systems;

a. A Certificate from the metal building manufacturer stating that the metal building was designed from a complete set of the contract drawings and specifications and that the building furnished complies with the specified requirements.

b. Mill certification for structural bolts, framing steel, roofing and siding, and steel wall liner panels.

c. Warranty certificate. At the completion of the project the Contractor shall furnish signed copies of the 5-year Warranty for Metal Building System, a sample copy of which is attached to this section, the 20-year Manufacturer's Material Warranties, and the

Manufacturer's 20-year System Weathertightness Warranty when one is required.

## 1.2 GENERAL REQUIREMENTS

The metal building system covered under this specification shall be provided by a single manufacturer and shall include all components and assemblies that form a building. Structural Standing Seam Metal Roofing System, when specified, shall be furnished as part of a single manufacturer's system.

### 1.2.1 Building Configuration

Buildings shall have structural steel main building frames, and secondary framing including purlins and girts, engineered and fabricated by the building systems supplier. Buildings shall have vertical steel walls and gable roof system including soffits, hot dipped galvanized gutters, gutter hangers, downspouts, and downspout supports. Roof slope shall be as shown on the drawings. The structural system shall be a clear rigid frame with tapered columns and roof beams with a gable roof. Exterior doors and frames, windows, louvers, gutters and downspouts and wind screens shall be included in the metal building system. Windows shall be per specification section 08510 STEEL WINDOWS. Doors and frames shall be per specification section 08110 STEEL DOORS AND FRAMES. Hardware shall be per specification section 08700 BUILDERS HARDWARE Building dimensions shall be not less than those indicated. Actual building length shall be structural line to structural line and shall be the same as the number of bays times the length of bays. Actual building width shall be structural line (or building line) to structural line (or building line) and shall be the nominal building width.

### 1.2.2 Qualifications

#### 1.2.2.1 Manufacturer

Metal building shall be the product of a recognized steel building systems manufacturer who has been in the practice of manufacturing steel building systems for a period of not less than 5 years. The manufacturer shall be chiefly engaged in the practice of designing and fabricating steel building systems. The manufacturer shall be certified under the Metal Building Systems (MB) Certification Program, AISC FCD. Structural framing and covering shall be designed by a licensed Professional Engineer experienced in design of this work.

#### 1.2.2.2 Installer

Erector shall have specialized experience in the erection of steel building systems for a period of at least 3 years. Framing shall be erected in accordance with MBMA Low Rise Manual, common industry practices and erection instructions describing the basic sequence of assembly, temporary bracing, shoring, and related information necessary for erection of the metal building including its structural framework and components. The erector shall furnish temporary guys and bracing where needed for squaring, plumbing, and securing the structural framing against loads acting on the exposed framing, such as wind loads and seismic forces, as well as loads due to erection equipment and erection operation. Bracing furnished by the manufacturer for the metal building system shall not be assumed to be adequate during erection. Structural members shall not be field cut or

altered without approval of the metal building manufacturer. Welds, abrasions, and surfaces not galvanized shall be primed after erection.

#### 1.2.2.3 Manufacturer's Representative

A representative designated by the building manufacturer, who is familiar with the design of the building supplied and experienced in the erection of metal buildings similar in size to the one required under this contract, shall be present at the job site during construction, from the start of the structural framing erection until completion of the installation of the exterior covering, to assure that the building is erected properly.

### 1.3 DESIGN REQUIREMENTS

Criteria and definitions shall be in accordance with MBMA Low Rise Manual, except criteria for seismic loads which shall be in accordance with TI 809-04 and all other loads and load combinations in accordance with ASCE 7-98.

#### 1.3.1 Dead Loads

The dead load shall consist of the weight of all permanent construction such as roof, framing, covering members and all other materials of the building system.

#### 1.3.2 Collateral Loads

Collateral load of 10 pounds per square foot shall be applied to the entire structure to account for the weight of additional permanent materials other than the building system, such as sprinklers, mechanical systems, electrical systems, hung partitions, and ceilings. This allowance does not include the weight of hung equipment weighing 50 pounds or more. Equipment loads of 50 pounds or more shall be shown on the shop (detail) drawings and the structure (frame, purlins, girts) shall be strengthened as required. The Contractor is responsible for providing the building manufacturer the magnitude and approximate location of all concentrated loads greater than 50 pounds before design of the building commences.

#### 1.3.3 Roof Live Loads

##### 1.3.3.1 Uniform Loads

Uniform roof live loads, including maintenance traffic and construction loads, shall be determined and applied in accordance with the design criteria as provided on the Contract Documents.

##### 1.3.3.2 Concentrated Loads

In addition to roof live loads, a minimum design concentrated load of 300 pounds shall be used to simulate a construction load on roof panels. The concentrated load shall be applied at the panel midspan and shall be resisted by a single standing seam metal roof panel, or a 24 inches wide corrugated metal panel, assumed to be acting as a beam. The undeformed shape of the panel shall be used to determine the section properties.

#### 1.3.4 Wind Loads

Wind pressures shall be computed and applied in accordance with the design criteria as provided on the Contract Documents.

#### 1.3.5 Seismic Loads

Seismic loads shall be computed in accordance with the design criteria as provided on the Contract Documents.

#### 1.3.6 Framing and Structural Members

Structural steel members and their connections shall be designed in accordance with AISC ASD Spec S335 or AISC S342L. Structural cold-formed steel framing members and their connections shall be designed in accordance with TI 809-07. Maximum deflection under applied live load, snow, or wind load shall not exceed 1/180th of the span length. Members with openings in their webs shall be designed with consideration of the additional stresses which will result due to the openings. Deflections of the steel framing above and along the side of commercially framed door openings shall be limited to a maximum allowable deflection of 1/360 of the opening width to ensure proper operation of the doors. The contractor shall include the loads that the door transfers to the building frame in the design. Framed openings shall be designed to structurally replace the covering and framing displaced. The subpurlin and/or purlin spacing shall not exceed 30 inches on centers at the corner, edge and ridge zones, and 5 foot maximum on centers for the remainder of the roof.

#### 1.3.7 Roofing and Siding

Except as otherwise specified, steel roofing and siding shall be designed in accordance with AISI Cold-Formed Mnl. Aluminum roofing and siding shall be designed in accordance with AA Standards & Data. Section modulus and moment of inertia of aluminum sheet shall be determined for actual cross section dimensions by the conventional methods for actual design stresses and by effective width concept for deflection in accordance with AA Design Manual. Maximum deflection for wall and roof panels under applied live load, snow or wind loads shall not exceed 1/180th of the span length. The design analysis shall establish that the roof, when deflected under loading combinations, shall not result in ponding. Maximum deflections shall be based on sheets continuous across two or more supports with sheets unfastened and fully free to deflect. The calculated deflection from the concentrated load shall not exceed 1/180 of the span length. The methods for resisting lateral loads shall be cross-bracing, rigid frames, or wind columns.

#### 1.3.8 Provisions for Gutters And Downspouts

Gutters and downspouts shall be designed according to the requirements of SMACNA Arch. Manual for storms which should be exceeded only once in (AM0002) 100 years and with adequate provisions for thermal expansion and contraction. Supports for gutters and downspouts shall be designed for the anticipated loads. Roof drainage system to withstand rainfall intensity of 6.7 inches per hour, with 5 minute duration.

#### 1.3.9 Provisions for Louvers

Louvers shall be fixed-blade type designed for a minimum net open area of 50% of total face area, , to be rainproof, and to resist vibration when air is passed at the rate of 800 cubic feet per minute.

#### 1.3.10 Drift Provisions

Lateral deflections, or drift, at the roof level of a structure in relation to the floor or slab on grade, caused by deflection of horizontal force resisting elements, shall conform to MBMA Low Rise Manual and the contract drawings.

#### 1.3.11 Grounding and Lightning Protection

Grounding and lightning protection shall be provided as specified in Section 13100A LIGHTNING PROTECTION SYSTEM.

#### 1.4 DESIGN ANALYSIS

The design analysis shall be the design of a licensed Professional Engineer experienced in design of this work and shall include complete calculations for the building, its components, and the foundations. Foundations shown on the drawings are based on loads derived from a representative set of similar building types. The Contractor shall obtain the services of a licensed Professional Engineer to verify that the foundations shown are adequate for the building supplied using the criteria in paragraph Foundations. Formulas and references shall be identified. Assumptions and conclusions shall be explained, and cross-referencing shall be clear. Wind forces on various parts of the structure, both positive and negative pressure, shall be calculated with the controlling pressure summarized. Lateral forces due to seismic loading shall be calculated and tabulated for the various parts and portions of the building. Computer programmed designs shall be accompanied by stress values and a letter of certification, signed by a licensed Professional Engineer, stating the design criteria and procedures used and attesting to the adequacy and accuracy of the design. A narrative of the computer program delineating the basic methodology shall be included. Computer program output shall be annotated and supplemented with sketches to verify the input and output. Critical load conditions used in the final sizing of the members shall be emphasized. The design analysis shall include the name and office phone number of the designer, who shall function as a point of contact to answer questions during the detail drawing review.

#### 1.5 DELIVERY AND STORAGE

Materials shall be delivered to the site in a dry and undamaged condition and stored out of contact with the ground. Materials other than framing and structural members shall be covered with weathertight coverings and kept dry. Storage accommodations for roofing and siding shall provide good air circulation and protection from surface staining.

#### 1.6 WARRANTIES

The Metal Building System, composed of framing and structural members, roofing and siding, gutters and downspouts, accessories, fasteners, trim, and miscellaneous building closure items such as doors and windows (when furnished by the manufacturer) shall be warranted as described below against material and workmanship deficiencies, system deterioration caused by exposure to the elements and service design loads, leaks and wind uplift damage. Any emergency temporary repairs conducted by the owner shall not negate the warranties.

##### 1.6.1 Prime Contractor's Weathertightness Warranty

The Metal Building System shall be warranted by the Contractor on a no penal sum basis for a period of five years against materials and

workmanship deficiencies; system deterioration caused by exposure to the elements and/or inadequate resistance to specified service design loads, water leaks, and wind uplift damage. The Metal Building System covered under this warranty shall include but is not limited to the following: framing and structural members, roofing and siding panels and seams, interior or exterior gutters and downspouts, accessories, fasteners, trim, flashings and miscellaneous building closure items such as doors and windows (when furnished by the manufacturer), connectors, components, and fasteners, and other system components and assemblies installed to provide a weathertight system; and items specified in other sections of these specifications that become part of the metal building system. All material and workmanship deficiencies, system deterioration caused by exposure to the elements and/or inadequate resistance to specified service design loads, water leaks and wind uplift damage shall be repaired as approved by the Contracting Officer. See the attached Contractor's written warranty for issue resolution of warrantable defects. This warranty shall warrant and cover the entire cost of repair or replacement, including all material, labor, and related markups. The Contractor shall supplement this warranty with written warranties from the installer and/or system manufacturer, which shall be submitted along with Contractor's warranty. However, the Contractor is ultimately responsible for this warranty. The Contractor's written warranty shall be as outlined in attached **WARRANTY FOR METAL BUILDING SYSTEMS**, and start upon final acceptance of the facility. The Contractor shall provide a separate bond in an amount equal to the installed total metal building system cost in favor of the owner (Government) covering the Contractor's warranty responsibilities effective throughout the five year Contractor's warranty period for the entire metal building system as outlined above.

#### 1.6.2 Manufacturer's Material and/or System Weathertightness Warranties

The Contractor shall furnish, in writing, the following manufacturer's material warranties to the Contracting Officer which cover all Metal Building System components:

a. A manufacturer's 20 year material warranty warranting that the specified aluminum, zinc-coated steel, aluminum-zinc alloy coated steel or aluminum-coated steel will not rupture, structurally fail, fracture, deteriorate, or become perforated under normal design atmospheric conditions and service design loads. Liability under this warranty shall be limited exclusively to the cost of either repairing or replacing nonconforming, ruptured, perforated, or structurally failed securement system including fasteners and coil material.

b. A manufacturer's 20 year exterior material finish warranty on the factory colored finish warranting that the finish, under normal atmospheric conditions at the site, will not crack, peel, or delaminate; chalk in excess of a numerical rating of eight, as determined by ASTM D 4214 test procedures; or change colors in excess of five CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244. Liability under this warranty is exclusively limited to replacing the defective coated material.

#### 1.7 COORDINATION MEETING

A coordination meeting shall be held within 45 days after contract award for mutual understanding of the metal building system contract requirements. This meeting shall take place at the building site and shall include representatives from the Contractor, the roofing/metal building

system manufacturer, the roofing/metal building supplier, the erector, the designer, and the Contracting Officer. All items required by paragraph SUBMITTALS shall be discussed, including applicable standard manufacturer Shop Drawings, and the approval process. The Contractor shall coordinate time and arrangements for the meeting

## PART 2 PRODUCTS

### 2.1 BUILDING COMPONENTS

Each piece or part of the assembly shall be clearly and legibly marked to correspond with the drawings. Instruction Manual shall be provided for individual building component systems.

### 2.2 FRAMING AND STRUCTURAL MEMBERS

Steel 1/8 inch or more in thickness shall conform to ASTM A 36/A 36M, ASTM A 529/A 529M, ASTM A 572/A 572M, or ASTM A 588/A 588M. Galvanized steel shall conform to ASTM A 653/A 653M, G 90 coating designation, 0.045 inch minimum thickness. Aluminum-zinc coated steel shall conform to ASTM A 792/A 792M, (AZ 55 or AZ50 coating designation as recommended by manufacturer) 0.045 inch minimum thickness. Structural pipe shall conform to ASTM A 53/A 53M, ASTM A 252, ASTM A 500, ASTM A 501, ASTM A 618, ASTM B 221, ASTM B 241/B 241M or ASTM B 429. Holes for structural connections shall be made in the shop.

### 2.3 ROOFING AND SIDING

Roofing and siding shall be steel and shall have a factory color finish.

#### 2.3.1 Roofing

Length of sheets shall be sufficient to cover the entire length of any unbroken roof slope unless otherwise approved. Width of sheets with interlocking ribs shall provide not less than 12 inches of coverage in place.

Provisions shall be made for thermal expansion and contraction consistent with the type of system to be used. (AM0002) Panels shall be standing seam type with concealed anchor clips. Panel system shall be class 90 as defined in UL 580. Height of standing seams shall be the manufacturer's standard for the indicated roof slope.

#### 2.3.2 Siding

Length of sheet shall be sufficient to cover the entire height of any unbroken height of wall surface unless otherwise approved. Width of sheets with interlocking ribs shall provide not less than 12 inches of coverage in place. Provisions shall be made for thermal expansion and contraction consistent with the type of system to be used. Siding shall have interlocking ribs for securing adjacent sheets. Siding shall be fastened to framework using (AM0002 - Deletion of "exposed or") concealed fasteners.

#### 2.3.3 Steel Panels

Roofing and Siding shall be zinc-coated steel conforming to ASTM A 653/A 653M, G 90 coating designation; aluminum-zinc alloy coated steel conforming to ASTM A 792/A 792M, AZ 50 coating; or aluminum-coated steel conforming to ASTM A 463/A 463M, Type 2, coating designation T2 E5. Panels shall be (AM0002) 0.023 inch thick minimum, except that when the mid field of the roof is subject to design wind uplift pressures of 60 psf or greater or the

steel covering is used as a diaphragm, the entire roof system shall have a minimum thickness of 0.030 inch.

#### 2.3.4 Factory Color Finish

Panels shall have a factory applied fluoropolymer finish on the exposed side. The exterior finish shall consist of a baked-on topcoat with an appropriate prime coat. Color shall match the color indicated in Section 09000 BUILDING COLOR AND FINISH SCHEDULE. The exterior coating shall be a nominal 2 mil thickness consisting of a topcoat of not less than 0.7 mil dry film thickness and the paint manufacturer's recommended primer of not less than 1.0 mil thickness. The interior color finish shall consist of the same coating and dry film thickness as the exterior. The exterior color finish shall meet the test requirements specified below.

##### 2.3.4.1 Salt Spray Test

A sample of the sheets shall withstand a cyclic corrosion test for a minimum of 2016 hours in accordance with ASTM D 5894, including the scribe requirement in the test. Immediately upon removal of the panel from the test, the coating shall receive a rating of not less than 10, no blistering, as determined by ASTM D 714; 10, no rusting, as determined by ASTM D 610 and a rating of 6, over 1/16 to 1/8 inch failure at scribe, as determined by ASTM D 1654.

##### 2.3.4.2 Formability Test

When subjected to testing in accordance with ASTM D 522 Method B, 1/8 inch diameter mandrel, the coating film shall show no evidence of cracking to the naked eye.

##### 2.3.4.3 Accelerated Weathering, Chalking Resistance and Color Change

(AM0002) A sample of the sheets shall be tested in accordance with ASTM G 154, test condition UVA-340 lamp, 8h UV at 60 degrees C followed by 4h CON at 45 degrees C for 1000 total hours; where UV = ultraviolet light (lamps) only and CON equals condensation conditions only. (AM0002) The duration of the test shall be a minimum of 1000 hours. The coatings shall withstand the weathering test without cracking, peeling, blistering, loss of adhesion of the protective coating, or corrosion of the base metal. Protective coating that can be readily removed from the base metal with tape in accordance with ASTM D 3359, Test Method B, shall be considered as an area indicating loss of adhesion. Following the accelerated weathering test, the coating shall have a chalk rating not less than No. 8 in accordance with ASTM D 4214 test procedures, and the color change shall not exceed 5 CIE or Hunter Lab color difference (delta E) units in accordance with ASTM D 2244. For sheets required to have a low gloss finish, the chalk rating shall be not less than No. 6 and the color difference shall be not greater than 7 units.

##### 2.3.4.4 Humidity Test

When subjected to a humidity cabinet test in accordance with ASTM D 2247 for 1000 hours, a scored panel shall show no signs of blistering, cracking, creepage or corrosion.

##### 2.3.4.5 Impact Resistance

Factory-painted sheet shall withstand direct and reverse impact in

accordance with ASTM D 2794 0.500 inch diameter hemispherical head indenter, equal to 1.5 times the metal thickness in mils, expressed in inch-pounds, with no loss of adhesion.

#### 2.3.4.6 Abrasion Resistance Test

When subjected to the falling sand test in accordance with ASTM D 968, Method A, the coating system shall withstand a minimum of 80 liters of sand before the appearance of the base metal. The term "appearance of base metal" refers to the metallic coating on steel or the aluminum base metal.

#### 2.3.4.7 Specular Gloss

(AM0002) Prefinished metal for the building shall have a specular gloss value of 30, plus or minus 5, at an angle of 60 degrees when measured in accordance with ASTM D 523.

#### 2.3.4.8 Pollution Resistance

Coating shall show no visual effects when covered spot tested in a 10 percent hydrochloric acid solution for 24 hours in accordance with ASTM D 1308.

#### 2.3.5 Accessories

Flashing, trim, metal closure strips and curbs, fascia, caps, diverters, and similar metal accessories shall be the manufacturer's standard products. Exposed metal accessories shall be finished to match the building finish. Molded closure strips shall be bituminous-saturated fiber, closed-cell or solid-cell synthetic rubber or neoprene, or polyvinyl chloride premolded to match configuration of the roofing or siding and shall not absorb or retain water.

#### 2.4 FASTENERS

Fasteners for steel wall and roof panels shall be zinc-coated steel, corrosion resisting steel, or nylon capped steel, type and size specified below or as otherwise approved for the applicable requirements. Fasteners for attaching wall panels to supports shall provide both tensile and shear strength of not less than 750 lbs per fastener. Fasteners for accessories shall be the manufacturer's standard. Exposed wall fasteners shall be color finished or provided with plastic color caps to match the covering. Nonpenetrating fastener system for wall panels using concealed clips shall be manufacturer's standard for the system provided.

##### 2.4.1 Screws

Screws shall be as recommended by the manufacturer to meet the design strength requirements.

##### 2.4.2 End-Welded Studs

Automatic end-welded studs shall be shouldered type with a shank diameter of not less than 3/16 inch and cap or nut for holding covering against the shoulder.

##### 2.4.3 Explosive Actuated Fasteners

Fasteners for use with explosive actuated tools shall have a shank of not

less than 0.145 inch with a shank length of not less than 1/2 inch for fastening panels to steel and not less than 1 inch for fastening panels to concrete.

#### 2.4.4 Blind Rivets

Blind rivets shall be aluminum with 3/16 inch nominal diameter shank or stainless steel with 1/8 inch nominal diameter shank. Rivets shall be threaded stem type if used for other than the fastening of trim. Rivets with hollow stems shall have closed ends.

#### 2.4.5 Bolts

Bolts shall be not less than 1/4 inch diameter, shouldered or plain shank as required, with proper nuts.

### 2.5 GUTTERS AND DOWNSPOUTS

(AM0002) Gutters and downspouts shall be fabricated of aluminum, zinc-coated steel, or aluminum-zinc alloy coated steel and shall have the same finish system as specified for the metal panels. Minimum uncoated thickness of materials shall be 0.018 inch for steel and 0.032 inch for aluminum. All accessories necessary for the complete installation of the gutters and downspouts shall be furnished. Accessories shall include gutter straps, downspout elbows, downspout straps and fasteners fabricated from metal compatible with the gutters and downspouts.

### 2.6 LOUVERS

Louvers shall be sized as indicated on drawings. Louvers shall be stationary drainable type with drain gutters in each blade and downspouts in the jambs or mullions. Louvers shall have a minimum of 50% free area (based on a nominal size of 48" wide x 48" high). Stationary drainable blades shall be contained within a 4" frame. Louver components (heads, jambs, sills, blades & mullions) shall be factory assembled by the louver manufacturer. Louver design shall incorporate structural supports required to withstand a windload equivalent to a 100 mph wind. Louver shall be performance rated per AMCA Standard 500 such that the beginning point of water penetration (0.01 oz/sq. ft) does not occur until a velocity through the louver reaches of 850 fpm. (Louver design sizes indicated on drawings are such that velocity shall not exceed 500 fpm)

### 2.7 CONTINUOUS ROOF VENTILATORS

Continuous roof ventilators shall be fabricated of aluminum, zinc-coated steel, shall have manufacturer's standard factory color finish, and shall be furnished with bird insect screens. Minimum uncoated thickness of materials shall be 0.018 inch for steel and 0.032 inch for aluminum. Ventilators shall be furnished in 8 to 10 feet long sections braced at midlength.

### 2.8 DOORS

#### 2.8.1 Hinged Doors

Hinged doors and frames shall SDOI SDI-100, Type, Grade and size as indicated the requirements of Section 08110 STEEL DOORS AND FRAMES. Exterior doors shall have top edges closed flush and sealed against water penetration. Hardware shall be as specified in Section 08700 BUILDERS'

HARDWARE.

## 2.8.2 Overhead Doors Rolling Doors

Overhead rolling doors shall conform to the requirements of Section 08330a OVERHEAD ROLLING DOORS. Hardware shall be as specified in Section 08700 BUILDERS' HARDWARE.

## 2.9 INSULATION

Thermal resistance of insulation shall be not less than the R-values shown on the contract drawings. R-values shall be determined at a mean temperature of 75 degrees F in accordance with ASTM C 518. Insulation shall be a standard product with the insulation manufacturer, factory marked or identified with insulation manufacturer's name or trademark and R-value. Identification shall be on individual pieces or individual packages. Blanket insulation shall have a facing as specified in paragraph VAPOR RETARDER. Roof and wall insulation, including facings, shall have a flame spread not in excess of 25 and a smoke developed rating not in excess of 50 when tested in accordance with ASTM E 84. The stated R-value of the insulation shall be certified by an independent Registered Professional Engineer if tests are conducted in the insulation manufacturer's laboratory. Contractor shall comply with EPA requirements in accordance with Division 1 Section requirements.

### 2.9.1 Rigid Board Insulation

#### 2.9.1.1 Blanket Insulation

Blanket insulation shall conform to ASTM C 991 .

#### 2.9.1.2 Insulation Retainers

Retainers shall be type, size and design necessary to adequately hold the insulation and to provide a neat appearance. Metallic retaining members shall be nonferrous or have a nonferrous coating. Nonmetallic retaining members, including adhesives used in conjunction with mechanical retainers or at insulation seams, shall have a fire resistance classification not less than that permitted for the insulation.

### 2.10 SEALANT

Sealant shall be an elastomeric type containing no oil or asphalt. Exposed sealant shall be colored to match the applicable building color and shall cure to a rubber like consistency.

### 2.11 GASKETS AND INSULATING COMPOUNDS

Gaskets and insulating compounds shall be nonabsorptive and suitable for insulating contact points of incompatible materials. Insulating compounds shall be nonrunning after drying.

### 2.12 VAPOR RETARDER

#### 2.12.1 Vapor Retarders as Integral Facing

Insulation facing shall have a permeability of 0.02 perm or less when tested in accordance with ASTM E 96. (AM0002) Facing shall be white metalized ploypropylene/scrim/kraft. Facings and finishes shall be factory

applied.

## 2.13 SHOP PRIMING

Ferrous surfaces shall be cleaned of oil, grease, loose rust, loose mill scale, and other foreign substances and shop primed. Primer coating shall be in accordance with the manufacturer's standard system.

## PART 3 EXECUTION

### 3.1 ERECTION

Dissimilar materials which are not compatible when contacting each other shall be insulated from each other by means of gaskets or insulating compounds. Improper or mislocated drill holes in panels shall be plugged with an oversize screw fastener and gasketed washer; however, panels with an excess of such holes or with such holes in critical locations shall not be used. Exposed surfaces shall be kept clean and free from sealant, metal cuttings, excess material from thermal cutting, and other foreign materials. Exposed surfaces which have been thermally cut shall be finished smooth within a tolerance of 1/8 inch. Stained, discolored or damaged sheets shall be removed from the site. Welding of steel shall conform to AWS D1.1; welding of aluminum shall conform to AA Design Manual.

#### 3.1.1 Framing Members and Anchor Bolts

Erection shall be in accordance with the approved erection instructions and drawings and with applicable provision of AISC ASD Spec S335. Framing members fabricated or modified on site shall be saw or abrasive cut; bolt holes shall be drilled. Onsite flame cutting of framing members will not be permitted. High-strength bolting shall conform to AISC S329 using ASTM A 325 or ASTM A 490, ASTM A 490M bolts. Improper or mislocated bolt holes in structural members or other misfits caused by improper fabrication or erection, shall be repaired in accordance with AISC S303. Concrete work is specified in Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE. Anchor bolts shall be accurately set by template while the concrete is in a plastic state. Uniform bearing under base plates and sill members shall be provided using a nonshrinking grout. Separate leveling plates under column base plates shall not be used. Members shall be accurately spaced to assure proper fitting of panels. As erection progresses, the work shall be securely fastened to resist the dead load and wind and erection stresses. Supports for electric overhead traveling cranes shall be positioned and aligned in accordance with MHI CMAA 70.

#### 3.1.2 Roofing and Siding Installation

Siding shall be applied with the longitudinal configurations in the vertical position. Roofing shall be applied with the longitudinal configurations in the direction of the roof slope. Accessories shall be fastened into framing members, except as otherwise approved. Closure strips shall be provided as indicated and where necessary to provide weathertight construction. Fastener and fastener spacing shall be in accordance with manufacture design.

#### 3.1.3 Installation of Gutters and Downspouts

Gutters and downspouts shall be rigidly attached to the building. Spacing of cleats for gutters shall be 16 inches maximum. Spacing of brackets and spacers for gutters shall be 36 inches maximum. Supports for downspouts

shall be spaced according to manufacturer's recommendations.

#### 3.1.4 Louvers and Ventilators

Louvers and ventilators shall be rigidly attached to the supporting construction to assure a weather tight installation.

#### 3.1.5 Doors and Windows

Doors and windows, including frames and hardware, shall be securely anchored to the supporting construction, shall be installed plumb and true, and shall be adjusted as necessary to provide proper operation. Joints at doors and windows shall be sealed according to manufacturer's recommendations to provide weathertight construction.

#### 3.1.6 Insulation Installation

Insulation shall be installed as indicated and in accordance with manufacturer's instructions.

##### 3.1.6.1 Blanket Insulation

(AM0002) Blanket insulation shall be installed between and parallel to the purlins with tabs of the facing lapping on the top face of the purlins. Thermal blocks shall be provided over purlins, between clips. A second layer of unfaced insulation shall be added between purlins to provide full R-value. Blanket insulation shall be supported by an integral facing or other commercially available support system.

#### 3.1.7 Vapor Retarder Installation

##### 3.1.7.1 Integral Facing on Blanket Insulation

Integral facing on blanket insulation shall have the facing lapped and sealed with a compatible tape to provide a vapor tight membrane.

### 3.2 FIELD PAINTING

Immediately upon detection, abraded or corroded spots on shop-painted surfaces shall be wire brushed and touched up with the same material used for the shop coat. Shop-primed ferrous surfaces exposed on the outside of the building and all shop-primed surfaces of doors and windows shall be painted with two coats of an approved exterior enamel. Factory color finished surfaces shall be touched up as necessary with the manufacturer's recommended touch-up paint.

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY  
FOR  
METAL BUILDING SYSTEM

FACILITY  
DESCRIPTION: \_\_\_\_\_

BUILDING  
NUMBER: \_\_\_\_\_

CORPS OF ENGINEERS CONTRACT  
NUMBER: \_\_\_\_\_

CONTRACTOR

CONTRACTOR: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_

POINT OF  
CONTACT: \_\_\_\_\_

TELEPHONE  
NUMBER: \_\_\_\_\_

OWNER

OWNER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

POINT OF  
CONTACT: \_\_\_\_\_

TELEPHONE  
NUMBER: \_\_\_\_\_

CONSTRUCTION AGENT

CONSTRUCTION  
AGENT: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_

POINT OF CONTACT: \_\_\_\_\_

TELEPHONE  
NUMBER: \_\_\_\_\_

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY  
FOR  
METAL BUILDING SYSTEM  
(continued)

THE METAL BUILDING SYSTEM INSTALLED ON THE ABOVE NAMED BUILDING IS WARRANTED BY FOR A PERIOD OF FIVE (5) YEARS AGAINST WORKMANSHIP AND MATERIAL DEFICIENCIES, WIND DAMAGE AND STRUCTURAL FAILURE WITHIN PROJECT SPECIFIED DESIGN LOADS, AND LEAKAGE. THE METAL BUILDING SYSTEM COVERED UNDER THIS WARRANTY SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING: FRAMING AND STRUCTURAL MEMBERS, ROOFING AND SIDING PANELS AND SEAMS, INTERIOR OR EXTERIOR GUTTERS AND DOWNSPOUTS, ACCESSORIES, TRIM, FLASHINGS AND MISCELLANEOUS BUILDING CLOSURE ITEMS SUCH AS DOORS AND WINDOWS (WHEN FURNISHED BY THE MANUFACTURER), CONNECTORS, COMPONENTS, AND FASTENERS, AND OTHER SYSTEM COMPONENTS AND ASSEMBLIES INSTALLED TO PROVIDE A WEATHERTIGHT SYSTEM; AND ITEMS SPECIFIED IN OTHER SECTIONS OF THESE SPECIFICATIONS THAT BECOME PART OF THE METAL BUILDING SYSTEM. ALL MATERIAL AND WORKMANSHIP DEFICIENCIES, SYSTEM DETERIORATION CAUSED BY EXPOSURE TO THE ELEMENTS AND/OR INADEQUATE RESISTANCE TO SPECIFIED SERVICE DESIGN LOADS, WATER LEAKS AND WIND UPLIFT DAMAGE SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER

ALL MATERIAL DEFICIENCIES, WIND DAMAGE, STRUCTURAL FAILURE AND LEAKAGE ASSOCIATED WITH THE METAL BUILDING SYSTEM COVERED UNDER THIS WARRANTY SHALL BE REPAIRED AS APPROVED BY THE CONTRACTING OFFICER. THIS WARRANTY SHALL COVER THE ENTIRE COST OF REPAIR OR REPLACEMENT, INCLUDING ALL MATERIAL, LABOR, AND RELATED MARKUPS. THE ABOVE REFERENCED WARRANTY COMMENCED ON THE DATE OF FINAL ACCEPTANCE ON AND WILL REMAIN IN EFFECT FOR STATED DURATION FROM THIS DATE.

SIGNED, DATED, AND NOTARIZED (BY COMPANY PRESIDENT)

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(Company President)

(Date)

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY  
FOR  
METAL BUILDING SYSTEM  
(continued)

THE CONTRACTOR SHALL SUPPLEMENT THIS WARRANTY WITH WRITTEN WARRANTIES FROM THE MANUFACTURER AND/OR INSTALLER OF THE METAL BUILDING SYSTEM, WHICH SHALL BE SUBMITTED ALONG WITH THE CONTRACTOR'S WARRANTY. HOWEVER, THE CONTRACTOR WILL BE ULTIMATELY RESPONSIBLE FOR THIS WARRANTY AS OUTLINED IN THE SPECIFICATIONS AND AS INDICATED IN THIS WARRANTY.

EXCLUSIONS FROM COVERAGE

1. NATURAL DISASTERS, ACTS OF GOD (LIGHTNING, FIRE, EXPLOSIONS, SUSTAINED WIND FORCES IN EXCESS OF THE DESIGN CRITERIA, EARTHQUAKES, AND HAIL).
2. ACTS OF NEGLIGENCE OR ABUSE OR MISUSE BY GOVERNMENT OR OTHER PERSONNEL, INCLUDING ACCIDENTS, VANDALISM, CIVIL DISOBEDIENCE, WAR, OR DAMAGE CAUSED BY FALLING OBJECTS.
3. DAMAGE BY STRUCTURAL FAILURE, SETTLEMENT, MOVEMENT, DISTORTION, WARPAGE, OR DISPLACEMENT OF THE BUILDING STRUCTURE OR ALTERATIONS MADE TO THE BUILDING.
4. CORROSION CAUSED BY EXPOSURE TO CORROSIVE CHEMICALS, ASH OR FUMES GENERATED OR RELEASED INSIDE OR OUTSIDE THE BUILDING FROM CHEMICAL PLANTS, FOUNDRIES, PLATING WORKS, KILNS, FERTILIZER FACTORIES, PAPER PLANTS, AND THE LIKE.
5. FAILURE OF ANY PART OF THE BUILDING SYSTEM DUE TO ACTIONS BY THE OWNER WHICH INHIBIT FREE DRAINAGE FROM THE ROOF, AND GUTTERS AND DOWNSPOUTS; OR CONDITIONS WHICH CREATE PONDING WATER ON THE ROOF OR AGAINST THE BUILDING SIDING.
6. THIS WARRANTY APPLIES TO THE METAL BUILDING SYSTEM. IT DOES NOT INCLUDE ANY CONSEQUENTIAL DAMAGE TO THE BUILDING INTERIOR OR CONTENTS WHICH IS COVERED BY THE WARRANTY OF CONSTRUCTION CLAUSE INCLUDED IN THIS CONTRACT.
7. THIS WARRANTY CANNOT BE TRANSFERRED TO ANOTHER OWNER WITHOUT WRITTEN CONSENT OF THE CONTRACTOR AND THIS WARRANTY AND THE CONTRACT PROVISIONS WILL TAKE PRECEDENCE OVER ANY CONFLICTS WITH STATE STATUTES. REPORTS OF LEAKS AND BUILDING SYSTEM DEFICIENCIES SHALL BE RESPONDED TO WITHIN 48 HOURS OF RECEIPT OF NOTICE BY TELEPHONE OR IN WRITING FROM EITHER THE OWNER, OR CONTRACTING OFFICER. EMERGENCY REPAIRS, TO PREVENT FURTHER ROOF LEAKS, SHALL BE INITIATED IMMEDIATELY; A WRITTEN PLAN SHALL BE SUBMITTED FOR APPROVAL TO REPAIR OR REPLACE THIS SSSMR SYSTEM WITHIN SEVEN CALENDAR DAYS. ACTUAL WORK FOR PERMANENT REPAIRS OR REPLACEMENT SHALL BE STARTED WITHIN 30 DAYS AFTER RECEIPT OF NOTICE, AND COMPLETED WITHIN A REASONABLE TIME FRAME. IF THE CONTRACTOR FAILS TO ADEQUATELY RESPOND TO THE WARRANTY PROVISIONS, AS STATED

CONTRACTOR'S FIVE (5) YEAR NO PENAL SUM WARRANTY  
FOR  
METAL BUILDING SYSTEM  
(Exclusions from Coverage Continued)

IN THE CONTRACT AND AS CONTAINED HEREIN, THE CONTRACTING OFFICER MAY HAVE THE METAL BUILDING SYSTEM REPLACED OR REPAIRED BY OTHERS AND CHARGE THE COST TO THE CONTRACTOR. IN THE EVENT THE CONTRACTOR DISPUTES THE EXISTENCE OF A WARRANTABLE DEFECT, THE CONTRACTOR MAY CHALLENGE THE OWNER'S DEMAND FOR REPAIRS AND/OR REPLACEMENT DIRECTED BY THE OWNER OR CONTRACTING OFFICER EITHER BY REQUESTING A CONTRACTING OFFICER'S DECISION, UNDER THE CONTRACT DISPUTES ACT, OR BY REQUESTING THAT AN ARBITRATOR RESOLVE THE ISSUE. THE REQUEST FOR AN ARBITRATOR MUST BE MADE WITHIN 48 HOURS OF BEING NOTIFIED OF THE DISPUTED DEFECTS. UPON BEING INVOKED THE PARTIES SHALL, WITHIN 10 DAYS JOINTLY REQUEST A LIST OF FIVE (5) ARBITRATORS FROM THE FEDERAL MEDIATION AND CONCILIATION SERVICE. THE PARTIES SHALL CONFER WITHIN 10 DAYS AFTER RECEIPT OF THE LIST TO SEEK AGREEMENT ON AN ARBITRATOR. IF THE PARTIES CANNOT AGREE ON AN ARBITRATOR, THE CONTRACTING OFFICER AND THE PRESIDENT OF THE CONTRACTOR'S COMPANY WILL STRIKE ONE (1) NAME FROM THE LIST ALTERNATIVELY UNTIL ONE NAME REMAINS. THE REMAINING PERSON SHALL BE THE DULY SELECTED ARBITRATOR. THE COSTS OF THE ARBITRATION, INCLUDING THE ARBITRATOR'S FEE AND EXPENSES, COURT REPORTER, COURTROOM OR SITE SELECTED ETC., SHALL BE BORNE EQUALLY BETWEEN THE PARTIES. EITHER PARTY DESIRING A COPY OF THE TRANSCRIPT SHALL PAY FOR THE TRANSCRIPT. A HEARING WILL BE HELD AS SOON AS THE PARTIES CAN MUTUALLY AGREE. A WRITTEN ARBITRATOR'S DECISION WILL BE REQUESTED NOT LATER THAN 30 DAYS FOLLOWING THE HEARING. THE DECISION OF THE ARBITRATOR WILL NOT BE BINDING; HOWEVER, IT WILL BE ADMISSIBLE IN ANY SUBSEQUENT APPEAL UNDER THE CONTRACT DISPUTES ACT. A FRAMED COPY OF THIS WARRANTY SHALL BE POSTED IN THE MECHANICAL ROOM OR OTHER APPROVED LOCATION DURING THE ENTIRE WARRANTY PERIOD.

-- End of Section --